

REMARKS

Claims 2, 4, 5, 7 and 14-22 are pending in this application. Claims 2, 4, 15, 20, 21, and 22 are amended herein. No new matter is added.

Claims 2, 4, 15, and 17 are independent.

The Examiner's allowance of claim 17 is noted with appreciation. It is respectfully submitted that, as will be understood from the discussion below, the remaining pending claims are likewise allowable in view of the applied art and an indication of the same is courteously requested.

Claims 2, 15-16, 20 and 22 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hasegawa et al (U.S. Patent 6,475,643). Claims 4-5, 7, and 21 stand rejected under 35 U.S.C. §103(a) as being obvious over Kenji et al. (referred to as PA) in view of Hasegawa. Claims 14 and 19 stand rejected under 35 U.S.C. §103(a) as being obvious over Hasegawa in view of Matsuzaki (JP-03255637). Claim 18 stands rejected under 35 U.S.C. §103(a) as being obvious over Kenji et al, Hasegawa, and Matsuzaki. To the extent not addressed by the amendments, the rejections are respectfully traversed.

As amended, independent claims 2, 4, and 15 recite "bismuth, antimony and gallium are not added to" an alloy composition or plating. Support for the lack of addition of bismuth, antimony and gallium is found in the originally filed specification at, for example, 1) page 7, line 20, through page 8, line 3; 2) page 15, lines 2-4; 3) page 16, lines 16-18, and associated table 2 on page 17; and 4) page 19, lines 3-8 and associated table 3. Each of these examples discloses one or more compositions to which bismuth, antimony, and gallium are not added.

Similar to the discussion in the previous Amendment (file September 9, 2004) the page 7 and 8 text discloses that a bismuth-containing lead free solder is

undesirable because such a solder is subject to thermal fatigue. This text discloses two preferred chemical compositions of a lead free solder in accordance with the present invention. The first is a composition having 2.0 to 5.0 mass% of silver, 0.01 to 2.0 mass% of copper, 0.002 to 0.015 mass% of phosphorus, and with the balance of this first composition being tin. The second is a composition having 0.01 to 2.0 mass% of copper, 0.002 to 0.015 mass% of phosphorus, and with the balance of this second composition being tin. Thus, neither bismuth, antimony nor gallium is added to the first or the second composition.

Also as discussed in the prior Amendment, the disclosure on page 15 teaches a phosphorus-containing, lead free solder having a chemical composition of tin, 3.0 mass% silver, 0.5 mass% copper, and 0.01 mass% phosphorus, and table 2, and the related text on page 16, teaches several compositions consisting of the elements of 1) tin, silver, and copper; 2) tin, silver, copper, and phosphorus; 3) tin and copper; and 4) tin, copper, and phosphorus. Both the page 15 and the table 2 examples teach compositions to which bismuth, antimony and gallium are not added. Table 3, and the related text on page 19, teaches tin, silver, copper, and phosphorus compositions and tin, copper and phosphorus compositions to which bismuth, but not antimony or gallium, is added, as well as tin, silver, copper and phosphorus compositions and tin, copper, and phosphorus compositions to which bismuth is not added. Table 3 discloses that antimony and gallium are not constituents of any composition included therein. Thus, the originally filed specification, in at least four sections, discloses an alloy composition or plating in which "bismuth, antimony and gallium are not added." As such, the pending claims of the instant application satisfy the written description requirement of 35 U.S.C. §112, first paragraph.

Also, as will be recognized, the claims of the instant application satisfy the clarity requirements of 35 U.S.C. §112, second paragraph. More particularly, and as discussed in the previous Amendment, MPEP 2173.05 (i) states that "So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. 112, second paragraph." Amended independent claims 2, 4, and 15 definitely recite "bismuth, antimony and gallium are not added to the " alloy composition or plating. Thus, the pending claims of the instant application definitely set forth the boundaries of the patent protection sought, and accordingly satisfy the clarity requirement of 35 U.S.C. §112, second paragraph.

Regarding the prior art rejection under 35 U.S.C. §102(b), Hasegawa discloses, at column 3, lines 10-18, a plating material containing 0.001-0.1 weight percent of gallium as an essential component. Thus, Hasegawa cannot anticipate claims 2, 15-16, 20, and 22, as they explicitly exclude the addition of gallium.

Regarding the prior art rejections under 35 U.S.C. §103(a), claims 4-5, 7, and 21 also explicitly deny the addition of gallium, and thus accordingly are not obvious over the combination of Kenji and Hasegawa. Also, claims 14 and 19, dependent from, respectively, claims 2 and 15, are not obvious over the Hasegawa and Matsuzaki combination for the same reason that claims 2 and 15 are not anticipated by Hasegawa. Furthermore, and as will be understood, claim 18 is not obvious over the Kenji, Hasegawa, and Matsuzaki combination, since claim 18 also explicitly denies the addition of gallium.

Accordingly, in view of the above, it is respectfully requested that the Examiner reconsider and withdraw the prior art rejections of claims 2, 4, 5, 7, 14-16, and 18-21.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed local telephone number, in order to expedite resolution of any remaining issues and further to expedite passage of the application to issue, if any further comments, questions, or suggestions arise in connection with the application.

To the extent necessary, applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage of fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 521.41457X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Sterling W. Chandler", followed by a long horizontal line extending to the right.

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